

Objective: To determine the density of a penny. Also to compare the density of pennies minted in different years.

Procedure:

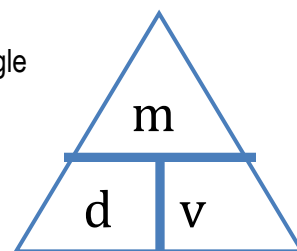
1. Determine the range (youngest to oldest) of your sample of pennies. Record in the data table.
2. Find the mass of the pennies by placing them on the balance. Record the mass in the data table.
3. Place water in the graduated cylinder. Record the amount of water in the data table to the proper decimal place. (Remember to estimate one number past what is marked on the graduated cylinder)
4. Carefully add your pennies to the cylinder to avoid and splashing. Record the new volume level to the appropriate decimal place.
5. Pour the contents of your cylinder in the colander in the sink (based on your pennies date range).
6. Wipe up any spills and return to your seat.

Data Table:

Total Mass of pennies	Initial Volume	Final Volume	Total volume of Pennies
Pennies date range (youngest to oldest)			

Calculations:

1. Determine the total density of your sample of pennies using the triangle formula shown in class be sure to include units!



Conclusion:

1. Why did the procedure tell you to determine the mass of the pennies before the volume? How would your results have been different if you had determined the volume first?
Explain using complete sentences.
2. Compare the average densities of the pennies pre-1982 and post-1982 that are listed on the board. Which had the higher density?
3. Pennies minted from the late 1940's through 1982 were composed of 95% copper and 5% zinc. Pennies minted from 1982 to present are composed of 5% copper and 95% zinc. One of the metals has a density of 8.96 g/mL and the other a density of 7.13 g/mL. Using the above information, determine which metal has which density. Explain your reasoning.